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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,084	07/23/2003	Yousif A. Hussain	15804-0108	5943
24267	7590	08/12/2004	EXAMINER	
CESARI AND MCKENNA, LLP			MACK, COREY D	
88 BLACK FALCON AVENUE			ART UNIT	
BOSTON, MA 02210			PAPER NUMBER	
			2855	

DATE MAILED: 08/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AM

<b>Office Action Summary</b>	<b>Application No.</b> 10/625,084	<b>Applicant(s)</b> HUSSAIN ET AL.	
	<b>Examiner</b> Corey D. Mack	<b>Art Unit</b> 2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- 1. ☐ Certified copies of the priority documents have been received.
  - 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Claim Objections*

1. Claim 2 is objected to because of the following informalities: line 1 recites “the *connection* device”. The Examiner assumes that Applicant intended for this limitation to be --the correction device-- which would be consistent with the other claims. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cage, et al. (US 6,516,674) in view of Poremba (US 6,516,674).

A. With respect to Claims 1 and 5, Cage discloses a Coriolis mass flow method and apparatus comprising: at least one straight measuring tube 1 conveying the flowing medium 28; at least one oscillation generator 7, 8 acting on the measuring tube; at least one measurement value sensor 13, 14 detecting Coriolis forces and/or Coriolis oscillations based on Coriolis forces and outputting a measurement signal 15, 16; a supporting tube 4 accommodating the measuring tube, the oscillation generator and the at least one measurement value sensor; at least one first stress sensor 29 for detecting the stress state of the measuring tube; a correction device 18 for correcting the measurement signal, the at least one measuring tube and supporting tube being connected to one another at spaced-apart fixing points 2, 3 in a manner excluding relative axial movements

Art Unit: 2855

(column 11, lines 22-60), and the at least one measurement value sensor and the at least one first stress sensor being connected to the correction device, in order to feed to the correction device the measurement signal and the stress signal outputted by the at least one first stress sensor (column 15, lines 9-25); at least one second stress sensor detecting the stress state of the supporting tube, the at least one second stress sensor being connected to the correction device in order to feed to the correction device the stress signal outputted by the at least one second stress sensor, so that a measurement signal can be outputted from the correction device that is corrected on the basis of the stress signal outputted by the at least one first stress sensor and the stress signal outputted by the at least one second stress sensor (column 15, lines 9-25).

Cage does not explicitly disclose that the fixing points represent the oscillation length of the measuring tube. However, Poremba discloses that it is well-known to connect the measuring tube and supporting tube at a points defining the oscillation length of the measuring tube in order to diminish oscillation length and stress variations on the measuring tube due to (column 1, line 58 – column 2, line 19). Therefore, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to include in Cage, et al. fixing points that represent the oscillation length of the measuring tube in order to diminish oscillation length and stress variations on the measuring tube.

B. With respect to Claims 2 and 6, Cage discloses that the correction device 18 includes means for providing an empirically determined correction function for determining the corrected measurement signal (column 15, lines 9-25).

Art Unit: 2855

C. With respect to Claims 4 and 7, Cage discloses that the at least one first stress sensor 29 is orientated in the longitudinal direction of the measuring tube and/or the at least one second stress sensor 41 is orientated in the longitudinal direction of the supporting tube.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cage, et al. (US 6,516,674) in view of Poremba (US 6,516,674) as applied to claims 1, 2 and 4-7 above, and further in view of Kalinoski, (US 6,164,140).

A. With respect to Claim 3, Cage discloses that the at least one first and second stress sensors are used as length-change sensors (column 11, lines 45-60). Cage also discloses RTD sensors and teaches that variety of sensor types could be used (column 11, line 55-58). Cage does not explicitly disclose the use of strain gages. Kalinoski, (US 6,164,140) discloses the use strain gages 110 to detect expansion and contraction of the flow tube 14 (column 5, lines 22-55). Therefore, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to include in Cage, et al. strain gages in order to sense the change in length of the measuring tube.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cook, et al. (US 6,397,685), Van Cleve, et al. (US 6,327,915), Schott, et al. (US 5,827,979), Van Cleve, et al. (US 5,850,039), and van der Pol (US 5,381,697) each disclose various embodiments of mass flow meters employing components of the claimed invention.

Art Unit: 2855

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey D. Mack whose telephone number is (571) 272-2181. The examiner can normally be reached on M-F, 8:30-4:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CDM

Corey D. Mack, Esq.  
Patent Examiner  
Art Unit 2855

August 5, 2004

  
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